

## CLAIMS

1. A method of transferring information in units over a wireless digital communications link between a transmitting station and a receiving station comprising the steps of:

transmitting first information units on a carrier modulated in accordance with a first modulation scheme;

monitoring if correct reception of the transmitted units occurred;

and

transmitting second information units associated with the first information units, for which first information units the monitoring did not indicate correct reception occurred, on a carrier modulated in accordance with a second modulation scheme, the second information units allowing the content of the first information units to be established.

2. The method of claim 1 wherein the second modulation scheme is of a lower order modulation than the first modulation scheme.

3. The method of claim 1 wherein received first information units transmitted with the first modulation scheme are combined with received second information units transmitted with the second modulation scheme.

4. A method of transferring information in units over a wireless digital communications link between a transmitting station and a receiving station comprising the steps of:

transmitting first information units comprising of data having a first spreading factor applied thereto;

monitoring if correct reception of the transmitted units occurred;

and

transmitting second information units associated with the first information units, for which first information units the monitoring did not indicate correct reception occurred, the second information units comprising of data having a

second spreading factor applied thereto, the second information units allowing the content of the first information units to be established.

5        5.        The method of claim 4 wherein the second spreading factor is greater than the first spreading factor.

6.        The method of claim 4 wherein received first information units transmitted with the first spreading factor are combined with received second information units transmitted with the second spreading factor.

10        7.        A method of transferring information in units over a wireless digital communications link between a transmitting station and a receiving station comprising the steps of:

15        transmitting first information units on the communications link using a first bandwidth;

          monitoring if correct reception of the transmitted units occurred;

          and

20        transmitting second information units associated with the first information units, for which first information units the monitoring did not indicate correct reception occurred, on the communications link using a second bandwidth, the second information units allowing the content of the first information units to be established.

25        8.        The method of claim 7 wherein the second bandwidth is lower than the first bandwidth.

9.        The method of claim 7 wherein received first information units transmitted using the first bandwidth are combined with received second information units transmitted using the second bandwidth.

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10. The method of claim 1 wherein the communications link is established by equipment operating in accordance with a communications protocol based on the Universal Mobile Telecommunication System.

5 11. The method of claim 1 wherein the communications link is established by equipment operating in accordance with a communications protocol based on the Universal Mobile Telecommunication System and further wherein the receiving station sends modulation scheme selection commands to the transmitting station in the transport format combination indicator (TFCI) field  
10 carried on a control channel set up in the communications link.

12. The method of claim 1 wherein the modulation schemes include those members of the set n-QAM or n-PSK where n is a positive integer.

15 13. The method of claim 1 wherein the first modulation scheme order is selected to be the highest possible order while maintaining a maximum allowable probability of failed first information units transmission and consequent second information units transmission.

20 14. The method of claim 4 wherein the first spreading factor is selected to be the lowest possible while maintaining a maximum allowable probability of failed first information units transmission and consequent second information units transmission.

25 15. The method of claim 1 wherein the transmission of second information units is at a power level which is controlled on the basis of the disparity between target and actual quality of reception parameters for said second information units, wherein the target quality of reception parameter for said second information units is different to the target quality of reception  
30 parameter for said first information units, the second information units allowing the content of the first information units to be established.

16. The method of claim 4 wherein the transmission of second information units is at a power level which is controlled on the basis of the disparity between target and actual quality of reception parameters for said second information units, wherein the target quality of reception parameter for said second information units is different to the target quality of reception parameter for said first information units, the second information units allowing the content of the first information units to be established.

17. The method of claim 7 wherein the transmission of second information units is at a power level which is controlled on the basis of the disparity between target and actual quality of reception parameters for said second information units, wherein the target quality of reception parameter for said second information units is different to the target quality of reception parameter for said first information units, the second information units allowing the content of the first information units to be established.

18. The method of claim 15, wherein the target quality of reception parameter for the second information units is greater than the target quality of reception parameter for the first information units.

19. A digital wireless communications system comprising at least one transmitter having means for transmitting first information units on a carrier modulated in accordance with a first modulation scheme;

at least one receiver having means for receiving the transmitted information units;

control means; and

monitoring means for monitoring if correct reception of the transmitted units occurred at the receiver,

wherein the transmitting means transmits second information units associated with the first information units for which first information units the monitoring means does not indicate correct reception has occurred, the second information units being transmitted on a carrier modulated in accordance with a

second modulation scheme; and wherein the second information units allow the content of the first information units to be established.

20. A transmitter station for digital wireless transmission of traffic  
5 information to a receiver, said transmitter station having:

a transmitter for transmitting first information units on a carrier modulated in accordance with a first modulation scheme;

control means; and

10 monitoring means for monitoring if correct reception of the transmitted units occurred at the receiver,

wherein the transmitter transmits second information units associated with the first information units for which first information units the monitoring means does not indicate correct reception has occurred, the second information units being transmitted on a carrier modulated in accordance with a second  
15 modulation scheme, the second information units allowing the content of the first information units to be established.

21. A receiver for use in a digital wireless communications system comprising at least one transmitter having means for transmitting first information  
20 units on a carrier modulated in accordance with a first modulation scheme, the receiver having means for receiving the transmitted information units;

control means; and

monitoring means for monitoring if correct reception of the transmitted units occurred at the receiver,

25 wherein the transmitting means transmits second information units associated with the first information units for which first information units the monitoring means does not indicate correct reception has occurred, the second information units being transmitted on a carrier modulated in accordance with a second modulation scheme; and wherein the second information units allow the  
30 content of the first information units to be established.

22. A digital wireless communications system comprising at least one transmitter having means for transmitting first information units comprising of data having a first spreading factor applied thereto;

5 at least one receiver having means for receiving the transmitted information units;

control means; and

monitoring means for monitoring if correct reception of the transmitted units occurred at the receiver,

10 wherein the transmitting means transmits second information units associated with the first information units for which first information units the monitoring means does not indicate correct reception has occurred, the second information units comprising of data having a second spreading factor applied thereto; and wherein the second information units allow the content of the first information units to be established.

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23. A transmitter station for digital wireless transmission of traffic information to a receiver, said transmitter station having:

a transmitter for transmitting first information units comprising of data having a first spreading factor applied thereto;

20 control means; and

monitoring means for monitoring if correct reception of the transmitted units occurred at the receiver,

25 wherein the transmitter transmits second information units associated with the first information units for which first information units the monitoring means does not indicate correct reception has occurred, the second information units comprising of data having a second spreading factor applied thereto, the second information units allowing the content of the first information units to be established.

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24. A receiver for use in a digital wireless communications system comprising at least one transmitter having means for transmitting first information

units comprising of data having a first spreading factor applied thereto, the receiver having means for receiving the transmitted information units;

control means; and

monitoring means for monitoring if correct reception of the transmitted  
5 units occurred at the receiver,

wherein the transmitting means transmits second information units associated with the first information units for which first information units the monitoring means does not indicate correct reception has occurred, the second information units comprising of data having a second spreading factor applied  
10 thereto; and wherein the second information units allow the content of the first information units to be established.

25. A digital wireless communications system comprising at least one transmitter having means for transmitting first information units on a  
15 communications link using a first bandwidth;

at least one receiver having means for receiving the transmitted information units;

control means; and

monitoring means for monitoring if correct reception of the transmitted  
20 units occurred at the receiver,

wherein the transmitting means transmits second information units associated with the first information units for which first information units the monitoring means does not indicate correct reception has occurred, the second information units being transmitted on a communications link using a second  
25 bandwidth; and wherein the second information units allow the content of the first information units to be established.

26. A transmitter station for digital wireless transmission of traffic information to a receiver, said transmitter station having:

30 a transmitter for transmitting first information units on a communications link using a first bandwidth;

control means; and

monitoring means for monitoring if correct reception of the transmitted units occurred at the receiver,

wherein the transmitter transmits second information units associated with the first information units for which first information units the monitoring means does not indicate correct reception has occurred, the second information units being transmitted on a communications link using a second bandwidth, the second information units allowing the content of the first information units to be established.

27. A receiver for use in a digital wireless communications system comprising at least one transmitter having means for transmitting first information units on a communications link using a first bandwidth, the receiver having means for receiving the transmitted information units;

control means; and

monitoring means for monitoring if correct reception of the transmitted units occurred at the receiver,

wherein the transmitting means transmits second information units associated with the first information units for which first information units the monitoring means does not indicate correct reception has occurred, the second information units being transmitted on a communications link using a second bandwidth; and wherein the second information units allow the content of the first information units to be established.

28. The method, system, transmitting station or receiver of the preceding claims wherein received first information units and received second information units are combined.